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Proposed Re-evaluation Decision PRVD2017-08

Acetic Acid

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Publications
Pest Management Regulatory Agency
Health Canada
2720 Riverside Drive
A.L. 6607 D
Ottawa, Ontario K1A 0K9

Internet: pmra.publications@hc-sc.gc.ca

Facsimile: 613-736-3758
Information Service:
1-800-267-6315 or 613-736-3799
pmra.infoserv@hc-sc.gc.ca

Canada

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Overview

What is the Proposed Re-evaluation Decision?

After a re-evaluation of the herbicide acetic acid, the Health Canada Pest Management Regulatory Agency (PMRA), under the authority of the *Pest Control Products Act* and Regulations, is proposing continued registration of pest control products containing acetic acid for sale and use in Canada.

An evaluation of available scientific information found that pest control products containing acetic acid do not present unacceptable risks to human health or the environment when used according to the proposed label directions. As a condition of the continued registration of acetic acid uses, new risk-reduction measures are proposed to be included on the labels of all products.

This proposal affects all end-use products containing acetic acid registered in Canada. Once the final re-evaluation decision is made, the registrant will be instructed on how to address any new requirements.

This Proposed Re-evaluation Decision is a consultation document[1] that summarizes the science evaluation for acetic acid and presents the reasons for the proposed re-evaluation decision.

The information is presented in two parts: The Overview describes the regulatory process and key points of the evaluation, while the Science Evaluation provides additional technical information on the assessment of acetic acid.

The PMRA will accept written comments on this proposal up to 90 days from the date of publication of this document. Please forward all comments to Publications (see contact information on the cover page of this document).

What Does Health Canada Consider When Making a Re-evaluation Decision?

The PMRA pesticide re-evaluation program considers potential risks, as well as value, of pesticide products to ensure they meet modern standards established to protect human health and the environment.

What is Acetic acid?

Acetic acid is a non-selective contact herbicide. It is registered for the control or suppression of various broadleaf and grassy weeds in turf (golf courses, lawns), residential areas (gardens, patios, driveways, sidewalks and fence lines), non-crop land areas (right-of-ways, industrial sites, vacant lots), around nurseries, around farm buildings, around greenhouses and non-crop areas inside greenhouses, and around apple trees, cranberry, and grape vines.

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[1] "Consultation statement" as required by subsection 28(2) of the *Pest Control Products Act*.

Acetic acid products are registered as Commercial and Domestic Class products. Commercial class products can be applied as a spot treatment or a broadcast spray using sprayers, hand guns, boom sprayers and as a soil injection. Domestic Class products containing acetic acid can be applied as a spot treatment with ready-to-use spray bottles.

Health Considerations

Can Approved Uses of Acetic Acid Affect Human Health?

Acetic acid is unlikely to affect your health when used according to the label directions.

Potential exposure to acetic acid may occur by applying the end use product, entering treated sites, or consuming food and water. The PMRA considers two key factors when assessing health risks: the levels at which no health effects occur and the levels to which people may be exposed. The levels used to assess risks are established to protect the most sensitive human population (for example, children and nursing mothers). As such, sex and gender are taken into account in the risk assessment. Continued registration is only supported for uses that are determined as having no health risks of concern.

Toxicology studies in laboratory animals describe potential health effects resulting from various levels of exposure to a chemical and identify dose levels at which no effects are observed. At concentrations found in end-use formulations, acetic acid is of low acute toxicity in the rat by the oral and inhalation routes. However, it is slightly toxic by the dermal route in rats and in rabbits. Based on its low pH, acetic acid is considered corrosive to the eyes, and mildly to moderately irritating to the respiratory tract and skin. It is not likely to be a skin sensitizer.

Risks in Residential and Other Non-Occupational Environments

Estimated risk for residential and other non-occupational exposure is not of concern.

Exposure from residential use of acetic acid is not of concern under the registered conditions of use which includes avoiding entry to freshly treated areas until sprays have dried.

Occupational Risks From Handling Products Containing Acetic Acid

Occupational risks are not of concern when products containing acetic acid are used according to the label directions, which include protective measures.

Occupational exposures to workers from mixing, loading and applying acetic acid using ground sprayers and soil injection equipment, as well as from re-entering treated sites, are not of concern under the registered conditions of use.

Residues in Water and Food

Dietary risks from food and water are not of concern.

Based on the registered use pattern of acetic acid, dietary exposure (food + water) to acetic acid residues from use as a herbicide is expected to be negligible. Moreover, considering its long history of use as a food substance, dietary exposure to acetic acid residues from use as a herbicide, however unlikely, is not of concern for all populations.

Environmental Considerations

What Happens When Acetic Acid is Introduced into the Environment?

Acetic acid is not expected to pose risks of concern to the environment when used according to the proposed label directions, which include protective measures.

Acetic acid is not persistent and was shown to biodegrade readily under both aerobic and anaerobic conditions and is not expected to bioaccumulate.

Acetic acid is not expected to pose an unacceptable risk to non-target organisms when used according to the proposed label instructions. To ensure reduced exposure to non-target plants and aquatic organisms, additional mitigative measures (label statements and buffer zones) are proposed.

Value Considerations

What is the Value of Acetic Acid?

Acetic acid is a non-selective herbicide used to control grassy and broad leaved weeds. Acetic acid provides an alternative to conventional herbicides and is of value for use in organic crop production. It also provides an alternative mode of action for weed control in apple, cranberry, grape and industrial weed control which may help contribute to the management of herbicide resistance.

Measures to Minimize Risk

Labels of registered pesticide products include specific instructions for use. Directions include risk-reduction measures to protect human health and the environment. These directions must be followed by law. As a result of the re-evaluation of acetic acid, the PMRA is proposing further risk-reduction measures related to human health and the environment for product labels.

Environment

- Buffer zone and label statements to protect non-target plants and aquatic organisms (Commercial Class products)
- Directions for use label statements (Commercial and Domestic Class products)

- Environmental precaution label statements (Commercial Class products)
- Disposal statements (Commercial Class products) Storage statements (Commercial and Domestic Class products)

A submission to implement label revisions will be required within 90 days of finalization of the re-evaluation decision.

What Additional Scientific Information is Required?

No additional data are required.

Next Steps

Before making a final re-evaluation decision on acetic acid, the PMRA will consider all comments received from the public in response to this consultation document. A science-based approach will be applied in making a final decision on acetic acid. The PMRA will then publish a Re-evaluation Decision[2] that will include the decision, the reasons for it, a summary of comments received on the proposed decision, and the PMRA response to these comments.

[2] "Decision statement" as required by subsection 28(5) of the *Pest Control Products Act*.

Science Evaluation

1.0 Introduction

Acetic acid is a non-selective contact herbicide. When it comes into contact with any parts of the plant, the acid quickly destroys the cell membrane, causing the leaves or root tissues to dry out.

Currently registered products containing acetic acid are listed in Appendix II.

2.0 Use Description of Acetic Acid

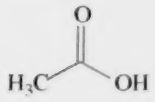
Commercial Class end-use products containing acetic acid are registered for use in turf (golf courses and lawns), residential areas (gardens, patios, driveways, sidewalks and fence lines), non-crop land areas (right-of-ways and industrial sites, vacant lots, outdoor areas around nurseries, farm buildings, outside of greenhouses and non-crop areas inside greenhouses and on the following crops: apple, cranberry and grape. Domestic Class end-use products are registered for use in turf (lawns) and residential areas (gardens, patios, driveways, sidewalks and fence lines).

Commercial Class products can be applied as a spot treatment or broadcast spray using handheld sprayers, hand guns, and boom sprayers. In apples and grapes, spray application are made between trees and vines. In cranberries, both spot spray and soil injection is registered. Domestic Class products containing acetic acid can be applied as a spot treatment with ready to use spray bottles. The directions for use in both Commercial and Domestic products indicate they can be applied numerous times throughout the growing season and both specify to apply 'spray until run-off'. Therefore, application rates would be variable depending on the target weed.

3.0 The Technical Grade Active Ingredient and Its Properties

3.1 Identity of the Technical Grade Active Ingredient

Common name		Acetic acid
Function		Herbicide
Chemical Family		Carboxylic acid
Chemical name		
1	**International Union of Pure and Applied Chemistry (IUPAC)**	Ethanoic acid
2	**Chemical Abstracts Service (CAS)**	Acetic acid

CAS Registry Number	64-19-7
Molecular Formula	$C_2H_4O_2$
Structural Formula	
Molecular Weight	60.05
Purity of the Technical Grade Active Ingredient	12% to 99.85%

3.2 Physical and Chemical Properties of the Technical Grade Active Ingredient

Property	Result
Vapour pressure at 20°C	1.47-2.25 kPa
Ultraviolet (UV) / visible spectrum	Not expected to absorb at λ >300 nm
Solubility in water	Completely miscible with water
n-Octanol/water partition coefficient	Log K_{ow} = -0.31 to -0.17
Dissociation constant	pK_a = 4.74-4.76

4.0 Human Health

Acetic acid is a naturally occurring metabolite found in all plants and animals, including humans. It has a long history of use as a food ingredient (vinegar) and can be found incorporated into various products intended for use by the Canadian public. Registered pesticide end-use products containing acetic acid are only slightly above (12-20%) the concentrations found in household vinegar (6-8%).

Based on the registered use patterns, exposure to acetic acid from use as a herbicide may occur through working as a mixer/loader/applicator, by entering treated sites, or by consuming food and drinking water.

4.1 Toxicological Summary

The database for acetic acid is considered adequate to characterize risk and is based on submitted information as well as publicly available toxicological information. Reduced data requirements are required for acetic acid on the basis that it is a naturally occurring intermediary metabolite found in all plants and animals (including humans) and has a history of use as a food ingredient.

At concentrations found in registered end-use products, acetic acid is of low acute toxicity in the rat by the oral and inhalation routes. However, it is slightly toxic by the dermal route in rats and in rabbits. Based on its low pH, it is considered corrosive to the eyes, and mildly to moderately irritating to the respiratory tract and skin. In humans, it has been reported to irritate the skin, eyes and respiratory tract. It is not likely to be a skin sensitizer.

The concentration of acetic acid in end-use products is only slightly above the levels expected in house-hold vinegar. Therefore, no short-term or long-term toxicological effects are anticipated and no toxicological endpoints have been established by the PMRA for the quantitative risk assessment. Data suggests that acetic acid is neither a mutagen nor a developmental toxicant, and it is not expected to be a carcinogen.

4.2 Occupational Exposure

Commercial Class acetic acid end-use products are applied primarily in a localized manner using handheld spray equipment or soil injection. In some cases, broadcast application may occur for non-crop areas using groundboom spray equipment. Because toxicological endpoints were not established by the PMRA, a qualitative exposure assessment was conducted for workers handling commercial end-use products.

Workers can be exposed to acetic acid through mixing, loading, and/or applying the product as well as through clean-up and maintenance activities. Workers can also be exposed when entering a treated site to conduct any number of postapplication activities.

When mixing, loading, and applying acetic acid, worker exposure is expected to be primarily via the dermal and ocular routes. Inhalation exposure from vapors and spray mist are also expected. Although acute exposure to acetic acid can be corrosive to the eye and irritating to the skin and respiratory tract, exposure concerns are not anticipated due to the low toxicity of acetic acid at concentrations found in the end-use products and adequate exposure mitigation measures already in place on the labels.

Considering the application method of Commercial Class end-use products containing acetic acid, postapplication exposure from wet surfaces via the skin is anticipated to be the primary route of exposure for workers entering treated sites. This exposure is expected to be minimal/insignificant and not of concern because of the low toxicity of acetic acid and mitigative label statements already present on labels that restrict entry into treated areas "until sprays have dried" for spot applications and "12 hours or until sprays have dried" for use of acetic acid in greenhouses and when used as a broadcast spray. Postapplication exposure is not of concern for re-entry to orchards and vineyards after sprays have dried following directed (and shrouded) ground sprays between trees and vines. The qualitative assessment for soil injection to cranberry concluded that postapplication exposure to workers entering the treated area was expected to be very low since the product is injected directly into soil at a depth of 6.5 cm, where acetic acid is known to degrade rapidly. A restricted-entry interval (REI) for soil injection use was not required.

On this basis, the exposure for workers mixing, loading, and/or applying acetic acid with handheld, groundboom, and injection equipment is not of concern. Likewise, the exposure for workers re-entering an area treated with acetic acid is not of concern when the proposed mitigation measures are considered.

4.3 Non-occupational Exposure

4.3.1 Residential Exposure and Risk

Domestic Class end-use products are applied as a spot treatment for turf, patio, driveways, gardens, sidewalks and fence lines. Because toxicological endpoints were not established by the PMRA, a qualitative exposure assessment was conducted for home-owners and bystanders handling domestic end-use products and / or entering a treated site.

When homeowners apply end-use products containing acetic acid, exposure is expected to be primarily via the dermal and ocular routes. Inhalation exposure from vapors and spray mist are also expected. For bystanders, dermal exposure from wet surfaces postapplication is anticipated to be the primary route of exposure.

Provided domestic-class end-use products are used according to label directions, potential risk to both residential applicators as well as bystanders is anticipated to be negligible, especially when the low toxicity of acetic acid at concentrations found in the end-use products is considered. Postapplication exposure was not expected to be of concern with the restricted entry statement 'Do Not reenter treated areas until sprays have dried'.

On this basis, the potential risk to homeowners and bystanders applying the product and/or re-entering a treated area is not of concern. Clarifications on the label with respect to restricting entry following application are proposed in Appendix III.

4.3.2 Dietary Exposure and Risk

Acetic acid has a long history of use as a food product and is of very low toxicity. Due to the low toxicity of acetic acid, no reference doses for quantitative dietary risk assessments have been established for acetic acid.

Based on the currently registered use patterns of acetic acid end-use products (that is, shrouded, directed sprays in apple and grape and spot or soil injection in cranberry), dietary exposure to residues resulting from use as a herbicide is expected to be negligible. Likewise, risk from exposure to drinking water is not anticipated as acetic acid readily biodegrades into non-toxic substances in the environment and is unlikely to persist to the extent that it could be consumed in drinking water. Consequently, the use of acetic acid according to label directions is not expected to result in residues in food and drinking water and is not expected to result in unacceptable dietary risk (food + drinking water) for all populations when used according to label directions. No additional mitigation measures are proposed.

4.4 Aggregate Exposure and Risk

Aggregate exposure is the total exposure to a single pesticide that may occur from food, drinking water, residential, and other non-occupational sources from all known or plausible exposure routes (oral, dermal and inhalation). For acetic acid, aggregate exposure includes residential use exposure and dietary exposure. However, the aggregate exposure is considered negligible based on current conditions of use and exposure is not of concern.

4.5 Cumulative Exposure and Risk

The *Pest Control Products Act* requires that the PMRA consider the cumulative exposure to pesticides with a common mechanism of toxicity. For the current re-evaluation, the PMRA did not identify information indicating that acetic acid shares a common mechanism of toxicity with other pest control products. Therefore there is no requirement for a cumulative assessment at this time.

4.6 Maximum Residue Limits

The *Food and Drugs Act* prohibits the sale of adulterated food, that is, food containing a pesticide residue that exceeds the established maximum residue limit (MRL). Pesticide MRLs are established for *Food and Drugs Act* purposes through the evaluation of scientific data under the *Pest Control Products Act*. Food containing a pesticide residue that does not exceed the established MRL does not pose an unacceptable health risk.

No Canadian MRLs have been specified for acetic acid because of its relatively low toxicity, history of use as a food substance and negligible potential for direct dietary exposure. However, for all agricultural commodities, including those registered for use in Canada but without a specific MRL, residues must not exceed 0.1 ppm as per Subsection B.15.002(1) of the Food and Drug Regulations.

5.0 Environment

Acetic acid may enter the environment through application to several commercial and residential areas (see Section 2.0). There is a potential that non-target terrestrial and aquatic habitats may be exposed to the herbicide as a result of spray drift or runoff.

5.1 Environmental Fate

Acetic acid is highly volatile, and photodegredation is the main mechanism of breakdown. When released into water, acetic acid is expected to readily biodegrade with a half-life between 1 and 10 days, and it is not expected to bioaccumulate. In soils, acetic acid is known to biotransform readily under aerobic and anaerobic conditions (half-life in soil <14 days) with the breakdown product being water. It is expected to have a moderate to very high mobility in soil (K_{oc} = 6.5-228). Based on several laboratory studies, acetic acid is not expected to be persistent in the environment.

5.2 Environmental Exposure and Risk Assessment

Acetic acid is toxic to plants by contact and, therefore, may damage any plant parts that are contacted by the spray. The potential for exposure of terrestrial non-target organisms is expected to be limited for spot applications and application as a directed, shielded spray, a spot application or as a soil injection targeting the roots of the pest plant directly. For broadcast liquid applications used for industrial vegetation control a refined assessment was performed for spray drift. With a buffer zone distance of one meter, the risks to non-target terrestrial plants are not of concern.

Toxicity tests with acetic acid have shown that it is slightly toxic to aquatic organisms. The potential for exposure of aquatic non-target organisms is expected to be limited for spot applications and use in crops based on the method of application. For broadcast liquid applications for industrial weed control a refined assessment was performed for spray drift and a buffer zone of one to two meters, is proposed to minimize the potential risks to non-target aquatic organisms.

To further reduce exposure, revised environmental label statements are proposed for end-use products based on the current labelling standards. These are listed in Appendix III. Acetic acid is not expected to pose risks of concern to the environment when used according to the proposed label instructions.

6.0 Value

Acetic acid is predominantly used in the domestic market for control of weeds in gardens, lawns, patios, sidewalks, and other locations. For homeowners, acetic acid is a valuable herbicide as it provides an alternative to conventional herbicides.

For Canadian growers, acetic acid has value as a non-conventional product for weed management in apple, grape, and cranberry production. Furthermore, it is the only herbicide that can be used in organic cranberry production. Furthermore, acetic acid can provide an alternative mode of action for weed control and may help contribute to resistance management.

7.0 Pest Control Product Policy Considerations

7.1 Toxic Substances Management Policy Considerations

Acetic acid was assessed in accordance with the PMRA Regulatory Directive DIR99-03, *The Pest Management Regulatory Agency's Strategy for Implementing the Toxic Substances Management Policy*, and evaluated against the Track 1 criteria. The PMRA concluded that acetic acid is not persistent and does not meet the Tack 1 criteria.

7.2 Contaminants and Formulants of Health or Environmental Concern

During the re-evaluation of acetic acid, possible contaminants in the technical grade active ingredient were compared against the *List of Pest Control Product Formulants and Contaminants of Health or Environmental Concern* maintained in the *Canada Gazette*.[3] The list is used as described in the PMRA Notice of Intent NOI2005-01 and is based on existing policies and regulations including: DIR99-03; and DIR2006-02, and taking into consideration the Ozone-depleting Substance Regulations, 1998, of the *Canadian Environmental Protection Act* (substances designated under the Montreal Protocol). Based on the manufacturing process used, impurities of human health or environmental concern as identified in the *Canada Gazette* are not expected to be present in the product. Arsenic and acetaldehyde were identified in the technical grade active ingredients at levels that are of no concern for human health and the environment.

8.0 Incident Reports

Starting 26 April 2007, registrants have been required by law to report incidents, including adverse effects to health and the environment, to the PMRA within a set time frame. As of 19 May 2017, the PMRA has received 29 human incident reports (involving 33 people) and 19 domestic animal incident reports. All human incidents occurred in Canada and were mostly minor in severity. Of the 17 incidents that were considered to be associated with the reported exposure to a product containing acetic acid, direct contact with skin or eyes was usually reported during the use of the product. The labels of the products that were involved in the incidents indicate that the product(s) are irritants.

Domestic animals, usually dogs, were most often exposed from contact with the area that had been treated, either by directly ingesting treated foliage or by walking on or around the area that had been sprayed with the product. Of the 12 incidents that were considered to be associated with the reported exposure, all were minor in severity.

With respect to the human incidents, product labels already include preventative statements and the low number of minor domestic animal incidents is not of concern. No additional risk mitigation measures are being proposed.

As of 19 May 2017, the PMRA has received 49 environment incident reports. All incidents were minor in severity and involved damage to plants, usually grass or lawns. All products involved in the incidents have statements on the labels indicating that the product is to be used on undesirable plants only.

The USEPA's Ecological Incident Information System was queried for acetic acid incidents that were available in the database as of 5 October 2015; there was one case reported. Plant damage was reported in this case, after the plants had been directly treated with the product.

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[3] *Canada Gazette*, Part II, Volume 139, Number 24, pages 2641–2643: *List of Pest Control Product Formulants and Contaminants of Health or Environmental Concern* and in the order amending this list in the *Canada Gazette*, Part II, Volume 142, Number 13, pages 1611-1613. *Part 1 Formulants of Health or Environmental Concern, Part 2 Formulants of Health or Environmental Concern that are Allergens Known to Cause Anaphylactic-Type Reactions and Part 3 Contaminants of Health or Environmental Concern.*

With respect to the environmental incidents, products labels already include preventative statements. No additional risk mitigation measures are being proposed.

Incident reports involving acetic acid were incorporated into the re-evaluation of acetic acid.

9.0 Organisation for Economic Co-operation and Development Status of Acetic Acid

Canada is part of the Organisation for Economic Co-operation and Development (OECD), which provides a forum in which governments can work together to share experience and seek solutions to common problems.

As part of the re-evaluation of an active ingredient, the PMRA takes into consideration recent developments and new information on the status of an active ingredient in other jurisdictions, including OECD member countries.

Acetic acid is currently acceptable for use in other OECD member countries, including the United States, Australia New Zealand and European Union Member States. As of 27 January 2017, no decision by an OECD member country to prohibit all uses of acetic acid for health or environmental reasons has been identified.

10.0 Proposed Re-evaluation Decision

The PMRA has determined that products containing acetic acid for sale and use in Canada are acceptable for continued registration with the implementation of the proposed label amendments (Appendix III).

List of Abbreviations

CAS	Chemical Abstracts Service
DIR	Regulatory Directive document
Inc.	Incorporated
IUPAC	International Union of Pure and Applied Chemistry
K_{oc}	soil organic carbon-water partition coefficient
Ltd	Limited
mm Hg	Millimeters mercury (Atmospheric pressure)
OECD	Organisation for Economic Co-operation and Development
PCPA	*Pest Control Products Act*
pH	-log10 hydrogen ion concentration
p*K*a	dissociation constant
PMRA	Pest Management Regulatory Agency
PRVD	Proposed Re-evaluation Decision
REI	restricted-entry interval
TGAI	Technical Grade Active Ingredient

Appendix I Registered Acetic Acid Products as of 4 October 2016

Registration Number	Marketing Type	Registrant Name	Product Name	Formulation type	Guarantee
30478	Technical Grade Active Ingredient	AG Global Canada GP Inc.	Amazingly Green Value Products Horticultural Vinegar Technical	Liquid	20%
31455	Commercial		Amazingly Green Horticultural Vinegar-C	Solution	
31459	Domestic		Amazingly Green Horticultural Vinegar		7%
31448	Technical Grade Active Ingredient	Association Des Producteurs de Canneberges du Québec	White vinegar 12% Technical	Liquid	12%
31447	Commercial		12% White Vinegar		
30471	Technical Grade Active Ingredient	Eco Solutions Inc.	Glacial Acetic Acid	Liquid	99.85%
30482	Commercial		Horticultural Vinegar	Solution	20%
30477	Domestic		Weed Terminator		6%
28015	Manufacturing concentrate	Ecoval Corporation	Ecoclear Manufacturing Concentrate	Solution	971 g/L;
25528	Commercial		Ecoclear Fast Acting Weed and Grass Killer		250 g/L
30248	Commercial	Engage Agro Corporation	Serene	Liquid	20%
28806	Technical Grade Active Ingredient	Greenstar Plant Products Inc.	Grotek Elimaweed Technical Grade Active Ingredient	Solution	20%
28807	Domestic		Grotek Elimaweed Weed & Grass Killer		7.15%
30529	Technical Grade Active Ingredient	Kenero Chemicals Limited	Acetic Acid	Liquid	99.85%
30531	Commercial		Weederase	Solution	20%
30530	Domestic		Weedender		6%
29404	Technical Grade Active Ingredient	Munger Landscape Distribution	Horticultural Vinegar Technical	Liquid	20%
29405	Commercial		Munger Horticultural Vinegar Plus		
29406	Domestic		Munger Horticultural Vinegar	Solution	7%
30611	Domestic		Munger Horticultural Vinegar HS		10%
25527	Technical Grade Active Ingredient	Scotts Canada Ltd.	Ecoclear Technical Herbicide	Liquid	99.85%
28163			Acetic Acid Technical Herbicide II	Solution	
26522	Domestic		Ecoclear for Fast Acting Weed Control (Ready to Use)		62.5g/L
27933			Scotts Ecosense Pathclear Grass & Weed Control Spray		
28178			Scotts Ecosense Pathclear Grass & Weed Control Spray		

Registration Number	Marketing Type	Registrant Name	Product Name	Formulation type	Guarantee
			with Quick Connect Sprayer		
28179			Scotts Ecosense Pathclear Grass & Weed Control Spray with Pull'N Spray Applicator		
28300			Scotts Ecosense Pathclear Fast Acting Grass & Weed Control Spray		
30400			Scotts® Ecosense® Pathclear™ Grass & Weed Control Ready-to-Use with Quickpump Applicator		
30542			Scotts® Ecosense® Pathclear™ Grass & Weed Control Ready-to-Use with Wand Applicator SCOTTS®		
31064			Refill for Scotts® Ecosense® Pathclear™ Grass & Weed Control Ready-to-Use with Wand Applicator SCOTTS®		
31240			Scotts® Ecosense® Pathclear™ Grass & Weed Control Ready-to-Use with Pull'N Spray Applicator		
29822	Domestic	Sure-Gro IP Inc.	Green Earth Weed & Grass Killer	Solution	7%
29823			Green Earth Weed & Grass Killer (2)		
29853			Wilson Total Wipeout (1) Ready-to-Use		
29854			Wilson Total Wipeout (2) Ready-to-Use		
30643			Total Wipeout Patio & Garden Weed Control		
29905	Technical Grade Active Ingredient	Turf Revolution	Turf Revolution Horticultural Vinegar TGAI	Liquid	20%
29918	Commercial		Turf Revolution Weedinator Liquid Herbicide		
29919	Domestic		Turf Revolution Weed Knock-out Liquid Herbicide	Solution	7%

Appendix II Label Amendments for Products Containing Acetic Acid

The label amendments presented below do not include all label requirements for individual end-use products, such as first aid statements, disposal statements, precautionary statements and supplementary protective equipment. Information on labels of currently registered products should not be removed unless it contradicts the label statements provided below.

A submission to request label revisions will be required within 90 days of finalization of the re-evaluation decision.

Commercial Class products

I) Under **DIRECTIONS FOR USE**, the following statements must be added to all products:

"As this product is not registered for the control of pests in aquatic systems. DO NOT use to control aquatic pests."

"DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes."

II) For products with outdoor use as a broadcast spray the following statements must be added under **DIRECTIONS FOR USE**:

DO NOT apply this product through any type of irrigation system."

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

DO NOT apply by air.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment, inter-row hooded sprayer, low-clearance hooded or shielded sprayers that ensure spray drift does not come in contact with orchard crop fruit or foliage, soil drench and soil incorporation.

For application to rights-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however, the best available application strategies which minimize off-site drift, including meteorological conditions (e.g., wind direction, low wind speed) and spray equipment (e.g., coarse droplet sizes, minimizing height above canopy), should be used. Applicators must, however, observe the specified buffer zones for protection of sensitive aquatic habitats.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:				
		Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial Habitats
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Non-crop land	2	1	1	1	1

* Buffer zones for the protection of terrestrial habitats are not required for use on rights-of-way including railroad ballast, rail and hydro rights-of-way and utility easements.

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

III) Under **PRECAUTIONS** include the following statement must be added for products that may be used for broadcast spray applications:

"For broadcast application and application in areas with poor ventilation, the applicator must also wear a NIOSH/MSHA-approved vapour respirator."

IV) Under **ENVIRONMENTAL PRECAUTIONS** the following statement must be added:

"TOXIC to aquatic organisms and non-target terrestrial plants. Observe buffer zones specified under DIRECTIONS FOR USE.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

V) Under **STORAGE,** the following statement must be added:

"To prevent contamination store this product away from food or feed."

Domestic Class products

I) Under **DIRECTIONS FOR USE**, the following statements must be added:

"Do not re-enter or allow entry into the treated area until dry."

II) Under **STORAGE** the following statement must be added:

"To prevent contamination store this product away from food or feed."

III) Under **DISPOSAL** the following statement must be added:

"DO NOT reuse the empty containers. Dispose in household garbage. Unused or partially used products should be disposed at provincially or municipally designated hazardous waste disposal sites."

References

A. PUBLISHED INFORMATION

2591552 2015. Proposed Registration Decision Acetic Acid PRD2015-30

2428328 2014. Proposed Registration Decision Acetic Acid PRD2014-15

2069543 2011. Evaluation Report for Category B, Subcategory 2.1, 2.3 Application 2011-1634

B. UNPUBLISHED INFORMATION

PMRA Document Number	Reference
2740613	2017, DACO 2.11 - Manufacturing Method [Privacy Info Removed], DACO: 2.11 CBI
2740615	2016, DACO 2.13.3 - Batch Data [Privacy Info Removed], DACO: 2.13.3 CBI
2740617	2016, DACO 2.13.4 - Impurities of Toxicological Concern [Privacy Info Removed], DACO: 2.13.4 CBI
2740614	2017, DACO 2.11 - Manufacturing Method [Privacy Info Removed], DACO: 2.11 CBI
2740616	2016, DACO 2.13.3 - Batch Data [Privacy Info Removed], DACO: 2.13.3 CBI
2740618	2016, DACO 2.13.4 - Impurities of Toxicological Concern [Privacy Info Removed], DACO: 2.13.4 CBI
1206335	TGAI Chemistry Data, DACO: 2.11.1,2.11.2,2.11.3,2.11.4,2.12.1,2.13.1,2.13.2,2.13.3, 2.13.4,2.14.1,2.14.10,2.14.11,2.14.12,2.14.13,2.14.14,2.14.2,2.14.3,2.14.4,2.14.5 ,2.14.6, 2.14.7,2.14.8,2.14.9 CBI
1206336	Process Flow Diagram, DACO: 2.11.3 CBI
1206337	2006, Analytical report: 200 Grain Vinegar, DACO: 2.13.1,2.13.2,2.13.3 CBI
1273433	2006, ANALYTICAL REPORT TO PROVIDE ADDITIONAL COMPOSITION DATA OF 300 GRAIN VINEGAR. VINEGAR TITRATION METHOD, GAS CHROMATOGRAPHY, DACO: 2.14.14 CBI
1743263	2009, [Privacy Info Removed] Certificate of Analysis, DACO: 2.13.3 CBI
2247042	2012, Chemistry-2.13.3-07nov2012-revised format-final, DACO: 2.13.3 CBI
2617913	2016, Chemistry-2.13.4-01march2016-re-evaluation deficiency, DACO: 2.13.4 CBI
2617914	2016, Vinegar versus Glacial Acetic Acid, DACO: 2.13.4 CBI
2617915	2016, The Making of Vinegar, DACO: 2.13.4 CBI
2617916	2016, Attachment 3-RF-WEB-VIN-W20, DACO: 2.13.4 CBI
2617917	2016, Attachment 4-RF-HACCP-F003, DACO: 2.13.4 CBI
2617918	2013, Analytical report 200 grain vinegar, DACO: 2.13.4 CBI
2617919	2013, DETAILED PRODUCTION PROCESS DESCRIPTION - 200 GRAIN VINEGAR FOR USE AS A HERBICIDE, DACO: 2.13.4 CBI
1875860	HACCp Process Flow Diagram, DACO: 2.11.3 CBI
1875861	Making of Vinegar, DACO: 2.11.3 CBI

PMRA Document Number	Reference
1875863	Certificate of Analysis, DACO: 2.12.1 CBI
1875864	Certificate of Analysis, DACO: 2.12.1 CBI
1875865	Certificate of Analysis, DACO: 2.12.1 CBI
1875867	2010, PART 2 CHEMISTRY TGAI Turf Revolution Horticultural Vinegar TGAI, DACO: 2.0,2.1,2.11.1,2.11.2,2.11.3,2.11.4,2.12.1,2.13.1,2.13.2,2.13.3,2.14.1,2.14.10,2.14.11, 2.14.12,2.14.13,2.14.14,2.14.2,2.14.3,2.14.4,2.14.5,2.14.6,2.14.7,2.14.8,2.14.9,2.2,2.3, 2.3.1,2.4,2.5,2.6,2.7,2.8,2.9 CBI
2040926	DACO TABLE 2 TGAI, DACO: 2.0,2.1,2.11.1,2.11.2,2.11.3,2.11.4,2.13.1,2.13.2,2.13.3, 2.14,2.14.1,2.14.10,2.14.11,2.14.12,2.14.13,2.14.2,2.14.3,2.14.4,2.14.6,2.14.7,2.14.8, 2.14.9,2.15,2.2,2.3, 2.3.1, 2.4,2.5,2.6,2.7,2.8,2.9
2040972	The [CBI Removed] Process for the Manufacture of Acetic Acid, DACO: 2.11.3,3.2.1,3.2.2
2068281	Glacial Acetic Acid Specification - Canada Colours, DACO: 2.12
2621862	2016, Ingredient spec 2015-4252, DACO: 2.13.3 CBI
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1953264	2007, Batch Data, DACO: 2.13.3 CBI
1953265	2004, Batch Data, DACO: 2.13.3 CBI
1953273	2007, Making of Vinegar, DACO: 2.11.3 CBI
1953275	2008, WORK INSTRUCTIONS VINEGAR FILTRATION REVERSE OSMOSIS FILTER (R.O.), DACO: 2.11.3 CBI
1953276	2010, Chemistry of Manufacturing, DACO: 2.11.1,2.11.2,2.11.3,2.11.4,2.13.2,2.13.4 CBI
1953282	2005, White 20% Vinegar, DACO: 0.14
2062609	The [CBI Removed] Process for the Manufacture of Acetic Acid, DACO: 2.11
2100733	Food Chemicals Specification, DACO: 2.12,2.3
2119483	DACO TABLE 2, DACO: 2.0,2.1,2.11,2.11.1,2.11.2,2.11.3,2.11.4,2.12.1,2.13,2.13.1, 2.13.2,2.13.3,2.13.4,2.14,2.14.1,2.14.10,2.14.11,2.14.12,2.14.13,2.14.14,2.14.2,2.14.3, 2.14.4,2.14.5,2.14.6,2.14.7,2.14.8,2.14.9,2.15,2.16,2.2,2.3,2.3.1,2.4, 2.5,2.6,2.7,2.8,2.9
2273244	CODO Partie 2-MAQT_Vinaigre blanc 12%., DACO: 2.1,2.10,2.11,2.11.1,2.11.2,2.11.3, 2.11.4,2.12,2.12.1,2.13,2.13.1,2.13.2,2.13.3,2.13.4,2.14,2.14.1,2.14.10,2.14.11,2.14.12, 2.14.13,2.14.14,2.14.2,2.14.3,2.14.4,2.14.5,2.14.6,2.14.7,2.14.8,2.14.9,2.15,2.16, 2.2,2.3, 2.3.1,2.4,2.5,2.6,2.7,2.8,2.9,4.5.2

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